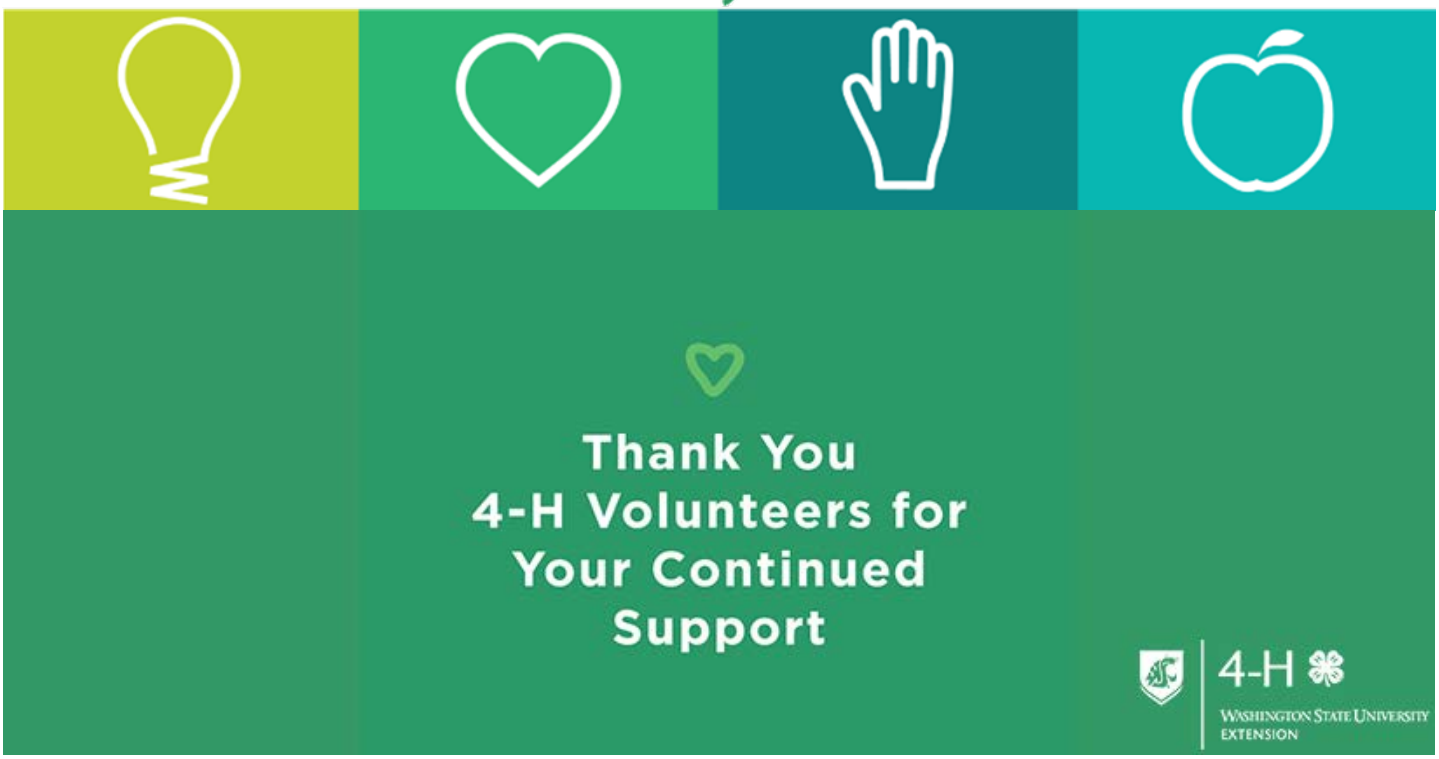
Tuesday News



Tuesday News – October 31, 2023

CONTENTS

FEATURES

- State 4-H Dog Committee Zoom Meeting Scheduled For November 5th! >NEW!<
- Due December 1: Applications For Harry Burcalow 4-H Endowment For Innovative Grants
- Save the Dates! State Equine Presentations for 2024!
- State 4-H Fair Equine Presentation Results Announced
- Ask Dr. Universe: How Do Plants That Need Very Little Water Survive? >NEW!<
- Ask Dr. Universe: What Is Mutualism In Nature?
- Q and A Sessions for the Washington 4-H Horse Program Continue - Now On First Wednesdays!

Features

State 4-H Dog Committee Zoom Meeting Scheduled For November 5th!

Jennifer Leach

The State 4-H Dog project meeting is scheduled for Sunday, November 5, via Zoom. The meeting will start at noon. The zoom link is included below.

Per dog committee chair, Chip Taylor, the agenda is quite full and presentation time and discussion time will be limited. Many of the agenda items are state fair related, but other key agenda items include agility, dog bowl, AKC 4-H dog project curriculum; showmanship questions; and judging contest/skillathon. A detailed agenda with discussion items has been posted on the State 4-H Dog Facebook page.

Just a reminder – per state dog project by-laws, any currently enrolled leader may attend the meeting and participate in discussion. As usual, it is your responsibility to enroll through 4-H online and you will receive confirmation/approval from your county extension office that your enrollment has been approved via 4-H online. Each county may designate up to two adult enrolled leaders and one enrolled youth member as "voting delegates" Only these voting delegates may vote.

For more information about the meeting and agenda items, contact Chip Taylor, Chair at jesse@nventure.com.

ZOOM DETAILS:

Please refer to this guide on Joining WSU Zoom Meetings before trying to join the meeting:

https://confluence.esg.wsu.edu/display/KB/Zoom+-+Joining+Meetings+and+Best+Practices

Join from PC, Mac, Linux, iOS, or Android: https://wsu.zoom.us/j/92136871877

Meeting ID: 921 3687 1877

Date & Time: Nov 5, 2023 12:00 PM Pacific Time (US and Canada)

Phone Call (long distance)
+1 253 215 8782
+12532158782,,9213687187 7# US (One Tap Mobile Call)

Submitted by Jennifer Leach, WSU 4-H Faculty and 4-H staff liaison to State 4-H Dog Committee

Due December 1: Applications For Harry Burcalow 4-H Endowment For Innovative Grants

Denise Echelbarger

Harry Burcalow is the former Associate Dean of the WSU College of Agriculture and Home Economics, now CAHNRS, and Associate Director of WSU Cooperative Extension. In retirement from WSU and now the WA 4-H Foundation Board, Burcalow remains a strong supporter of 4-H programs. He personally founded the Harry Burcalow 4-H Endowment for Innovative Grants, funding projects and programs that help 4-H youth serve their communities, while learning about leadership, decision making, responsibility, and healthy lifestyle choices.

In 2022 the funds from the Harry Burcalow 4-H Endowment for Innovative Grants helped purchase gardening supplies for Yakima County's Grandview Elementary After School Program. Goals included promoting 4-H to school youth, (many who come from low-income households), and providing hands-on learning through the 4-H gardening curriculum.

The goal of the grant is to fund worthy 4-H youth development programs or projects. The emphasis is on short-term needs such as new innovative programs, seed money, emergency, or unanticipated shortfalls. 4-H depends on involvement and donations to help Washington youth from all walks of life succeed.
Learn more about the Harry Burcalow 4-H Endowment for Innovative Grants **HERE**.

Save the Dates! State Equine Presentations for 2024!

Kim Baker & Jennifer Leach

New for 2024 — the state equine presentations, formerly called “National Equine Presentations,” will no longer be held at the 4-H State Fair. This year, the equine presentation contest will be held February 3, 2024 and will be virtual.

These are specific presentations for seniors that focus on the equine industry that include individual presentation, team presentation, and public speaking, with the

top blue-ribbon winners eligible to represent the Washington State 4-H equine program at the Eastern 4-H Equine Roundup that is held the first weekend of November in Louisville, Kentucky.

More details will come later about the specifics of the contest, such as registration information, updated rules, etc.

We wanted to let counties know now about the revised date in order to prepare senior 4-H members at the county level for the state contest.

Kim Baker has agreed to be the coordinator for this state contest. If you have questions about the contest contact Kim at **kim.baker@wsu.edu** or Jennifer Leach, State 4-H Horse contact at **jleach@wsu.edu**

Submitted by Jennifer Leach, State 4-H horse contact

State 4-H Fair Equine Presentation Results Announced

Jennifer Leach

Congratulations to the seven senior 4-H members who participated in the State Equine presentations, held virtually on Sunday, September 17th. There were two team presentations, Charlotte Pestinger and Camille Talbot from Thurston County and Sierra Carlson and Sebastion Palmer from Snohomish County, and two individual presentations, Dylan Qureshi from Snohomish County and Norah Gilbertson from Spokane County. Emmalee Broadbent from Snohomish County. presented for public speaking.

The top blue-ribbon winners in the above three categories are eligible to represent the Washington State 4-H Horse Program at the national contest called the Eastern National 4-H Horse Roundup that will be November 3rd through 5th in Louisville, Kentucky. They will be joining the State 4-H Horse Bowl Team and 4-H State Hippology teams, both from Snohomish County, along with the top four individuals from the State Horse Judging Contest.

The 4-H members representing the equine presentations at the National contest are the team of Charlotte Pestinger and Camille Talbot and Dylan Qureshi doing his individual presentation.

The contest could not have been successful without the efforts of the “officials,” includes judges Kelli Whidden and Alyssa Bowers, along with timer/scorekeeper-Ramona Leber, and tech support from Kim Baker.

On behalf of the Washington State 4-H Horse Program, congratulations to all the state winners; we wish them luck at the 2023 Eastern National Equine 4-H Horse Roundup!.

Submitted by Jennifer Leach, State 4-H Horse Contact and Coordinator of the State Equine Presentation contest

Ask Dr. Universe: How Do Plants That Need Very Little Water Survive? – Alivia, 11, Maryland

*Do you love insects? Me, too. In the latest episode of the **Ask Dr. Universe podcast**, I talked with an insect scientist about bugs and how there's a place in science for everyone!*

Dr. Universe: How do plants that need very little water survive? – Alivia, 11, Maryland

Dear Alivia,

My neighbor has a very prickly garden. It's full of cactuses—including one thorny plant nearly as tall as my house. That's not something you see every day in the Pacific Northwest. Cactuses usually live in dry places like deserts.

I talked about your question with my friend **Linda Chalker-Scott**. She's a garden scientist at Washington State University.

She told me plants that need very little water have adapted to dry conditions. **Adaptations** are changes in the physical body or behavior that help a plant or other living thing survive. Then, it can pass on those changes to its babies.

"Plants are very adaptable," Chalker-Scott said. "They will colonize almost every environment, and some are able to survive low water conditions. Over time, these plant populations **evolve** ways to conserve water."

Another way to describe plants that live in dry places is drought tolerant. They can survive times with little water by holding on to the water inside them. One way they do that is by adapting their **leaves**. The outside of a leaf is called the epidermis—just like your skin. One of the jobs of the plant's epidermis is to make wax and ooze it out. The wax protects the leaf from damage and holds in water.

Many drought-tolerant plants, including cactuses and succulents like jade plants, have evolved to make more wax than other plants. A thick wax layer slows down how much water the plant can lose.

Plants lose water through small openings called **stomata**. If you zoomed in with a microscope, you'd see the stomata look like tiny mouths. The "lips" are called guard cells.

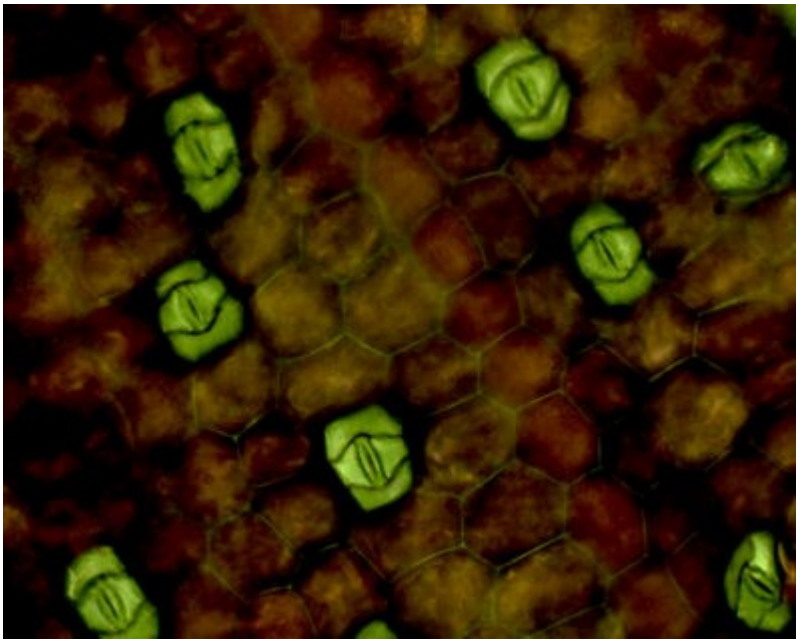


Image: AioftheStorm/Wikicommons

Plants use their roots to suck up water from the ground. It travels up the stem. Then, when the guard cells open the stomata, plants release some water through the openings. It evaporates into the air as water vapor.

Many drought-tolerant plants have evolved smaller leaves. Smaller leaves mean fewer stomata to let out water.

Some plants take it to an extreme. Their leaves adapted into **spines**. All those prickly spines you see on a cactus? Those are modified leaves. They don't have stomata, so they don't lose water through their leaves.

But plants still need stomata. That's how they take in carbon dioxide and release oxygen when they **make food** using the sun's light. So, cactuses have stomata on their stems and open them at night when it's cooler.

Plants also adapt their roots to survive in dry places. Some cactuses have shallow roots that spread out to suck up lots of water when it rains. Others have a very long central root that reaches the water deep underground.

Chalker-Scott told me that even plants adapted to dry conditions love water. "Most plants will use as much water as they can get," she said. "It's a misconception that you don't need to water your cactuses and succulents very much because they've adapted. If you water them, they'll grow very quickly." Maybe that's why my neighbor has such happy cactuses. With all that water, they can grab life by the thorns.

Sincerely,
Dr. Universe

Dr. Universe: What is mutualism in nature? – Luke and Wade, 10, Maryland

Dear Luke and Wade,

When I get the same question from different kids, I know it's a good one.

So, I talked about your question with my friend **Angeliqua Montoya**. She's a graduate student at Washington State University. She works on a mutualism between pea plants and bacteria.

"I study **ecology**, which is looking at interactions between different species," she said. "Mutualisms are interactions where both species benefit."

Living things **interact with each other** in lots of ways. When a lion kills a rabbit, that's an interaction. When a bird builds a nest in a tree, that's an interaction. When a bee collects pollen from a flower, that's also an interaction.

Some interactions are good for just one individual and bad for the other. The lion gets a meal. But the rabbit becomes a meal. Some interactions are good for one individual but neutral for the other. The bird gets a nice place to lay eggs. The tree isn't helped or harmed.

Some interactions are good for both individuals. The bee collects pollen to feed the colony's baby bees. As the bee visits flowers, it spreads pollen around. That's how plants **make baby plants**. This interaction is a mutualism. It's good for the bee and the plant.

Sometimes scientists label the type of mutualism. Here are three common ones. Transportation mutualisms help move stuff around. That's important for plants because they can't move on their own. Our bee moving pollen from flower to flower is a transportation mutualism. Another is when a bat eats fruit then flies away and poops out the seeds somewhere else.

Protective mutualisms are about staying safe. Montoya told me some squid let special bacteria live inside their cells. The bacteria make the **squid glow**. When a hungry predator swims under the squid, they think the squid is the moon—not their dinner.

This root has pinkish-orange nodules. Photo: ***Ninjatacoshell/Wikimedia***

Montoya studies a nutrition mutualism. It's about food. As pea family plants—called legumes—grow, they gather bacteria from the soil. They make lumps called nodules on their roots. The bacteria live inside the nodules. They eat some of the sugar the plants make. In return, the bacteria take in nitrogen from the soil. They change it into a form the plant can use. That helps the plant grow bigger and faster.

"You can go out in the back yard and find a legume like a clover plant," Montoya said. "If you dig up its roots and wash off the dirt, you'll see little nodules. They're filled with bacteria."

An ancient mutualism is probably why plant and animal cells work the way they do today.

Inside plant and animal cells, there are mitochondria. That's the part of a cell that turns food energy into energy your body can use. Plant cells also have

chloroplasts. That's the part of a plant cell that changes light energy from the sun into energy for the plant.

More than a billion years ago, there were bacteria that could make usable energy, too. Other one-celled organisms sucked up those bacteria. But they didn't die. They kept making energy inside their cozy new homes. They evolved to **become mitochondria and chloroplasts**.

You could say they started something new-tual.

Sincerely,
Dr. Universe

Get more questions and answers here!

Know a kid with a science question?

Help them submit it for a chance to be featured in a future Q&A.

Submit a question!

Q and A Sessions for the Washington 4-H Horse Program Continue – Now On First Wednesdays!

Have questions about the Washington 4-H horse program? **Our monthly Q and A for leaders, parents, members, and staff will now be meeting on the first Wednesday of each month via Zoom from 6:30 to 7:30 pm. beginning June 7th.**

Zooms are structured around the theme/parameters of horses and youth development. They are more than "what are the rules." There is also time set aside for input on future topics for subsequent Zooms. **The Zoom meeting ID is 452-082-9765 with no passcode**. You must have a zoom account to participate.

The meetings are facilitated by Kim Baker, State 4-H Equine Coordinator.

Feel free to contact Kim with any questions at ***kim.baker@wsu.edu*.**